Society Activities

SOCIETY OF IRISH FORESTERS 42nd ANNUAL STUDY TOUR

14th-18th May, 1984

WALES

Monday, 14th May

The first day of the 1984 Study Tour began at the University of North Wales at Bangor where we were met by Dr. Geoff Elliot and Mr. Roger Cooper of the Department of Forestry and Wood Science. Dr. Elliott welcomed the Society to Wales and wished us well for the coming week. He went on to give a brief history and description of the work of the Department. It was founded in 1904 as the Department of Forestry and it was not until 1970 that a full honours course in Wood Science was added. The need for wood science training is a growing one as timber production from British forests is increasing by 5% annually. There are more than 150 students enrolled in the Department. Professor Laurence Roche, a native of Co. Wexford, is Head of the Department. Due to a previous committment, however, he was unable to meet the Society. In recent years there has been increased emphasis on tropical forestry in the Department and a postgraduate course in Agroforestry has been initiated. After his brief discourse Dr Elliott introduced Mr. Roger Cooper who gave an introduction to forestry and forest based industry in Wales. The total forest area of 241,000 ha covers 11.6% of the land area and 12% of the total forest area of Great Britain. Conifers predominate, comprising 170,000 ha of which about 75% is owned by the Forestry Commission. The remaining 70,000 ha is mainly broadleaved woodland mostly privately owned and less intensively managed. Forestry Commission planting reached a peak during the 1950s when over 5,300 ha were planted annually. Recent years have seen a decline in both the amount of planting and the involvement of the Forestry Commission. In 1983, for instance, of 1,400 ha established over two thirds was privately planted. Previously the great bulk of new planting was carried out by the Commission. Sitka spurce is the main species comprising 52% of all planting; this is followed by larch at 14% and Norway spruce at 12%. The mean Yield Class for all species is 11.5, for Sitka spruce it is 12.0. Total roundwood production in 1982 was 730,000m^3 which was 15% of total production in Great Britain. Of this 680,000m^3 was coniferous timber, the vast bulk of which was produced by the Commission. Outlets for thinnings were seriously reduced in the late 1970s and early '80s, with the closure of plants at Ellsmere and Bristol which had a capacity of 150,000m^3/annum. There is, however, a major new paper pulp plant under construction at Shotton on the site of the old British Steel works which will have a capacity of 450,000m^3/annum for small dimension thinnings and sawmill residues. The sawmill industry is thriving and there have been substantial increases in timber prices in recent years. Current prices in pounds sterling and underbark volumes are: pulpwood (7-14cm) £10-12/m^3, 'bars' (14-18cm) £24/m^3 and logs (18cm+) £35/m^3. The two latter categories have increased in price by 60% over the past two years. Projections estimate that timber production will reach 1.5 million m^3 annually by the end of the century and this represents an income of £200,000,000 sterling in present terms.

After a short break for coffee, we had three short presentations. The first was by Dr. D. M. Harding on forestry and water resources. Up to the 1950s water engineers encouraged forest establishment in catchments. The supposed beneficial effects were an improvement in water quality and a slower release of rainfall.

This view was challenged during the 1950s and '60s when evidence became available that forests lose more water through evapotranspiration than does grassland. Recent work by the Institute of Hydrology has compared water yields from two catchments in Wales. The Severn catchment is 67% afforested, having been planted mostly during the 1940s. In contrast the Wye catchment is almost all grassland. Water yield had been computed from both catchments on a unit area basis. Yield from the Wye catchment was 12% greater than from the Severn. Dr. Harding in his presentation and in the brief discussion at the end of the morning discussed some of the implications of these findings and it was agreed that investigations of this kind would be most desirable in Ireland. The next speaker, Mr. R. A. Smart, dealt with the great spruce bark beetle, *Dendroctonus micans,* which is a serious pest of spruce in England and Wales. It was first reported there in 1973 and is thought to have arrived in unbarked timber from Germany. The current approach to control is to designate Scheduled Areas where the beetle is known to occur. Stands within these areas which are known to be infected must be clearfelled. The timber is debarked and the bark residues are treated with insecticide. Timber cannot be moved outside the Scheduled Areas unless under licence. One of the problems in controlling the pest is that it can persist at infected sites in stumps and slash after clearfelling. A specific predator of *Dendroctonus, Rhizophagus grandis* is being bred for a release programme in 1984. It is clear that this pest is of major economic importance and any measures that are necessary should be taken to prevent its occurrence in Ireland. (An information note on the pest was issued by the Forest and Wildlife Service in August, 1982). The last speaker of the morning, Mr. F. Curry, gave a talk on forestry and bird populations. Afforestation has a varied effect upon bird populations, some species such as golden plover and dunlin almost disappear after planting, while birds of prey such as buzzard, short-eared and long-eared owls and kite increase. This is due to an increase in small mammal populations following fencing and fertilisation. Leaving roadside margins unplanted can help to maintain black grouse populations and their main predators such as hen harrier and merlin. Nest boxes help to encourage cavity nesting birds and leaving dead stems standing at clearfelling help siskin and firecrest populations. After Mr. Curry's presentation there was time for a very short discussion on some of the matters dealt with during the morning. We then made our way to the Senior Common Room in the Top College where the Principal, Sir Charles Evans, was our host for lunch. With appetites replete the President of the Society, Dr. Niall O'Carroll thanked Sir Charles, the staff of the Department of Forestry and Wood Science and the other speakers for a most informative morning and for providing an excellent lunch.

For the afternoon session we made our way over the Menai bridge to Anglesey, to Newborogh Parc Mawr on the shores of Caernarvon Bay. Our hosts for the afternoon were Dr Graham Mayhead, District Forest Manager, Mr. Tom Carter, Newborough Forest and Mr. Griffiths, all from the Forestry Commission. The main object of the afternoon was to demonstrate the problems associated with conservation, amenity and recreation in managing the forest which is a Site of Special Scientific Importance (SSSI), designated under the Wildlife and Countryside Act. The forest covers an area of 952 ha of which about 720 ha have been planted mainly between 1947 and the early 1970s. The climate is mild with an annual rainfall of 900mm. Before afforestation the whole area was mobile and semimobile sand dunes. The main species is Corsican pine which suffers from nitrogen deficiency in some places. In recent years over 150 ha have been fertilised by helicopter with urea at 150kg N/ha. Returning to the main object of the afternoon's visit, Dr. Mayhead explained that most management activities within the forest must be notified to the Nature Conservancy Council. Particular areas of interest within the forest have specific proposals relating to future work and a record is kept of work which is done. The forest lies within an Area of Outstanding Natural Beauty (AONB) and the

Countryside Commission is the body which decides on this status. Before returning to Llandudno Mr. Ernest Johnston paid thanks to Dr Mayhead, Mr. Carter and Mr. Griffiths for a most enjoyable and interesting afternoon. Back on the bus we retraced our steps passing near Llanfairpwllgwyngyllgogerychwyrndrobwllllantysiliogogogoch, amongst other places.

Eugene Hendrick.

Tuesday 15th May

Morning

On the second day the Society were guests of the Forestry Commission at Gwydyr forest. Gwydyr is one of the oldest forests in Forestry Commission ownership — the first plantings were carried out in 1921. Now, its 6,000 hectares of mainly coniferous plantations surround the popular tourist village of Betws y Coed on the hillsides and plateaux above the rivers Conwy, Llugwy, Lledr and Machno. Height ranges from near sea level to 300-400m. Rainfall ranges from 1140mm in the north of the forest to 2030mm in the south. Species choice and growth rates are appropriately varied.

Despite the considerable influence of tourism in the area generally, major fellings started in the late 1960s, and the present felling programme is 45,000m^3, of which 30,000m^3 will be done by Forestry Commission staff. It was fitting therefore, that the first stop of the day should be at a clearfell site. At this stop near the village of Dolgarrog and overlooking the Vale of Conwy the Tour leader Dr. Graham Mayhead introduced Mr. David Robertson, Conservator North Wales and the local staff — Mr. Bill Taylor, District Forester (Harvesting & Marketing), Mr. Chris Griffiths District forester (Management), and Mr. Barry Moore and Mr. D. Johnston Harvesting foresters.

Mr. Johnston then described the site and the extraction equipment. The main species was DF, P/1932 Yield Class 18, with some GF, NS, WH and SP. The average pole size was 1.32m^3. The main extraction equipment on view was a Timberjack skidder which had the power to cope with the big trees in steep and broken terrain. The harvesting operation was done by a team of five, two of whom could drive the skidder. Felling averages 4.3m^3/hr, extraction 8.7m^3/hr and conversion at roadside 7.6m^3/hr. Obviously therefore two and sometimes three of the team are engaged in felling and debranching. The average skidding distance to roadside seemed to be about 75-100m.

Ninety-five percent of the produce on this site was sawlog (>18cm TDUB) 1% was bars (14-18cm TDUB, corresponding to our small sawlog), and the remainder was pulp and stakewood. The total cost of harvesting was £4.69/m^3 OB and the price paid for the sawlog at roadside was £29.70/m^3 OB. During the discussion which then followed it emerged that the method of measurement for sale depended on the purchaser. Most logs are sold by volume and measured onto the lorry. Where the logs were sold by weight a volume/weight ratio of 1.2 was used for fresh logs. Although the material seemed suitable it was interesting that no transimssion poles were produced. In Great Britain there is a tendency to put most power lines underground.

The party then boarded the coach which slowly travelled through the towns of Llanrwst and Betws y Coed, and along the Lledr valley to the next stop near the village of Dolwyddelan. The main topics here were a spacing experiment and harvesting in unthinned Sitka spruce. The experiment is one of a series in Britain planted in 1935. The crop has had a minimal thinning: removal of dead trees only. The following measurements taken at 48 years of age describe the crop.

UNTHINNED SS P/35, YIELD CLASS 10

Initial Spacing (m)	Top Height (m)	Trees/ha		Mean DBH cm	Vol/ha m^3	PAI 1978-83 m^3/ha	Volume to: 18cm TD m^3/ha	Volume to: 24cm TD m^3/ha
		No.	% Survival					
0.9	18.3	2669	22	16.2	428	18	92	12
1.4	18.3	2536	48	17.5	483	21	143	41
1.8	18.7	1911	64	20.5	513	24	243	82
2.4	18.5	1321	79	24.0	494	25	325	138

Dr. Mayhead led the party through each of the four spacings before the discussion inevitably centered on volume production/timber quality at different spacings. As can be seen from the table there is a considerable increase in volume of larger dimensions with increased spacing. Against this must be offset the lowering of quality due to larger branches and increased ring width. Battens sawn from material from a similar experiment which had recently been felled were dried to 18% moisture content (22% specified in most applications) and machine stress graded. The grade level was M75. Generally the results as expected showed that the closer the spacing the stronger the timber. The low yield of saw-logs from closer spacings offset any gain in strength. The material from the 2.4m spacing was considerably weaker than that from 1.8m spacing.

The general thinking in the Forestry Commission at the moment is not to extend spacing beyond 2.0m because of quality problems. Also the situation in Britain is different from Ireland in that they do not get an appreciable increase in price for larger sawlogs. This may be because highly automated British mills are not as adaptable as their Irish counterparts. The discussion then centred on the economics of combining initial wide spacing and high pruning, without any broad concensus emerging.

Afternoon

As we finished our picnic lunch the rain which had threatened during the morning was most welcome to the District staff as it eased the fire danger — evidence of which we had seen on the coach journey from Dolgarrog. The first stop after lunch was about 400m from the spacing experiment — to view cable crane extraction on a clearfell of a similar unthinned SS P/35 YC 8 crop planted at 1.5m x 1.5m. Unfortunately, due to either a breakdown in communications or because he was an Irishman the contractor failed to appear and we did not see the system operating. The cable system itself was an Igland Jones Mini Alp powered by a County tractor. Normally it is operated by a team of five — two felling and trimming, two on the cable system and one jointing and stacking. It takes two men about 5 hours to dismantle, move to next location and set up the system. Mean production is about 250m^3 (=.75ha) per set up, with haulage distance up to 250m. Average load is 1.4m^3.

The average vol/ha is 328m^3 and the average pole size is 0.182m^3. In Forestry Commission operations the average output in this type of material is 4-5m^3/hr. This is considered very expensive and is the main reason for contracting out. The produce from his site is sawlogs 37%, bars 20%, pulp 27%, chipwood 15%. The cost to the FC to mark and tariff is £0.75/m^3 and harvesting is £7.90/m^3, giving a total cost of production of £8.65/m^3 sterling. Again, the method of sale depends on the purchaser. The sawlogs are cut into standard 7.3m and 3.6m lengths for ease of loading and measuring. If sale is by weight the vol/weight ratio is got by measuring and weighing the first ten loads to a mill, with periodic checks thereafter.

During the discussion it was pointed out that replanting on this site would be done without any windrowing of brash. It was accepted that beating-up would be necessary but hopefully the brash would have broken down by then. The rain was falling heavily now, so we boarded the coach and headed towards the final stop of the day. We went back through Betws y Coed and along the A5 to Bryn Engan in the valley of the Llugwy. Here the theme was conservation and regeneration of oak woodlands. The group was led through a large area of oak planted 1866-70 which was thinned heavily in the 1950s with a view to natural regeneration. Some beech and mixed conifers were also interplanted in groups in the 1950s. However, the site is now notable for an almost complete absence of oak regeneration and a rich flora of light demanding species — bryophytes, ferns, lichens and birches. Thinning work is now favouring the oak, but some mature oak is being removed to enable a few groups of sessile oak to be planted in tubes.

The discussion centred on the reasons for the failure of the oak to regenerate naturally. Some of the ideas put forward included a lack of scarification, sheep grazing and over-usage by the public. In conslusion, Mr. T. Mannion on behalf of the Society thanked our hosts for an interesting and pleasant day.

P. Raftery.

Wednesday, 16th May

First Stop: Meeting with Institute of Chartered Foresters at Dolgellau. This day was sponsored by the I.C.F., whom we met at Dolgellau. The tour leader was Mr. Walker. After a short introduction we drove to the estate of V. Gaskell Esquire. (Nannau Estate).

Theme for Visit: Integration of forestry in relation to other land uses with special reference to Snowdonia National Park.

The woodlands of Nannau Estate are managed by Flintshire Woodlands Ltd., and two of their staff, Mr. Walker and Mr. Radford conducted members around the estate.

An outline history of the estate was given at outset by Mr. Walker. The following were the salient points.

1. Since the 70s the woodlands have been actively managed.
2. Many of the older stands had been felled/replanted and the majority of the remainder have been thinned.
3. An active plan to extend the plantations had been set in motion. Existing plantations have been acquired from the B.F.C.

Age Structure of Woodlands	
Pre 1900	16.2ha
1930-1939	0.7ha
1940-1949	0ha
1956-1959	40.6ha
1960-1969	61.7ha
1970-1979	8.5ha
1980-1984	33.3ha
For planting	99.1ha
Unplantable	7.3ha
Total Area of the Estate:	1629ha

Agricultural Policy: The integration of the agricultural and forestry interests is the ultimate objective.

The first stop on the estate was at a commanding viewpoint. The discussion which took place revealed a number of important points.

Conservation:

1. The estate is in the middle of Snowdonia National Park and is accordingly greatly constrained with regard to forest operations.
2. Any proposed planting is subject to scrutiny by the B.F.C. before a grant is payable. In the park the planting had to be further approved by the parks officer.
3. Planting can be carried out without permission if the grant is not sought, but the I.C.F. will only handle work that is grant aided.

Mechanics of Control: The way in which the controls over planting are effected were comprehensively outlined. The process is quite involved. All interested bodies have to be contacted and their objections have to be taken into consideration. Maps, plans, etc., have to be drawn up and one or more joint meetings take place on the site.

Planning Authority: Under a 1961 voluntary agreement forestry was not forced to submit itself to the above authority. In recent years pressures have arisen to reverse this and hence foresters are keen to see that the existing controls work.

Private Consultants: Background information and history was given on the private forest consultants working in the United Kingdom. Their role and input was also discussed at length.

The dedication scheme of 1941 exposed the lack of expertise available to the estates. The initial response was the setting up of co-operatives to share costs and pool expertise between the smaller estates. However they did not all survive and today there are only 4 out of a peak of 50. The co-ops undertake the whole range of operations. They are in direct competition with the management companies which are a more modern phenomenon.

The final stop was at a recent planting on a small scale. At this site the discussion revealed a number of interesting points.

1. *Labour:* The tendancy for almost all estates is to replace permanent labour by using contractors. This tendancy arises for two reasons. Firstly the permanent staff are not competitive and secondly they are unable to make the transformation from establishment to harvesting.
2. *Tax:* An outline of the tax reductions that are enjoyed by forestry was given but it was emphasised that these were not as attractive as might first appear.
3. *Afforestation of Small Areas:* The adverse economics of planting these is offset by the increasing resource accruing to the estates.
4. *Public Roads:* In numerous areas the poorness of the public roads would be a direct constraint on the utilisation of the plantations at clear fell time. There were even suggestions that forestry might make contributions towards the upkeep of roads which they had reason to use. This was felt to be a proposal that would have a devastating effect on the profitability of forestry in most areas.

Visit to Dolymeen block of Llanbyrnmair Forest: This is managed by the Economic Forestry Group on behalf of a number of private owners. This block had been recently roaded and planted in the spring. Mr. A. Smith-Jones along with Messrs Proctor and Plume conducted the party for the visit.

Economic Forestry Group: This is one of the many private companies that grew up after the 50s to channel funds into private afforestation. It provides a complete service for the private investor. Initially it does the following:

1. Identifies land available for planting.
2. Assesses its potential.
3. Arranges purchase.
4. Provides an investment survey.

The E.F.G. manages forests right through the rotation and has approximately 0.25m acres on its books. Discussion highlighted the following in regard to the E.F.G.

Labour: Almost totally contract.

Ownership: Owned by shareholders.
Charges: For time spent on work only.
Returns: Felt to be about 4% in real terms.
Constraints: Increasing opposition from pressure groups hindering development.
Costs: On block visited felt to be around £500/ha (includes management).
Land: Paid between £600-£700/acre.
Roads: Cost approx. £15/metre.
Fertiliser: Planting received the standard application and will receive extra if it is perceived to be necessary.
Species: One species only (i.e. S.S.) planted because of simplicity of marketing. Felt that it was more profitable to plant SS rather than L.P.(c) though it would require fertiliser.
Thinning: Depend on the market situation whether done or not.
Internal Rates of Return: Computer evaluation has shown that rates are not greatly affected by thin on no thin option.
Owner: Has the final say whether thinning done or not.
Stability: The more stable sites were not becoming available for planting due to pressure groups.
Plant Supply: The E.F.G. have their own nursery.
Drainage: This tends to be determined by what the owner is willing to spend; (generally 10 chains/ha of plough drain and 50 metres/ha of machine drainage).
Provenance: This is the responsibility of the nursery.
Stocking: Important to get adequate stocking at the start as the owners tend to be reluctant to spend extra money after 3-4 years.
Roading: This is normally left to Yr. 20 but in this instance done at the outset to suit the financial profiles of the owners.
Fire: Insurance against this risk is available. The cost is approx. 20p per £100 risk.
Rainfall: For this site approx. 70-80 inches/ann.
Y.C.: Hoping for Y.C. 14 but will probably be less.

A profile of the people who invest in private forestry and the mechanics of how the money is attracted and channelled into tree planting, was outlined.

Arthur McGinley, on behalf of the group, thanked all those involved for the interesting visit they had provided.

P. O'Kelly.

Thursday, 17th May

Morning

The tour leader Mr. R. Stumbles, secretary of the local branch of the Institute of Chartered Foresters, introduced the group to the directors of Western Softwoods, Mr. Paul Marsh, Mr. David Roberts and Mr. C. Burd.

The 22 acre site was first purchased in 1979 and production was started less than eighteen months after. Nearly all the machinery is Swedish and it is the most modern mill in England and Wales. Thirty five people are employed at the moment and it is hoped that another ten will be employed when the mill reaches full production by the end of the year. At the moment the mill operates on a two shift basis and consumes a total of 1800m^3 per week. The mill was sited in this area, because it was envisaged at the time, that the production of softwoods from the forests of mid and south Wales would double by the 1990s to 2000. At all times roughly two to three weeks supply is in stock, logs of various lengths are sorted in the wood, and each shift operates on one length logs, depending on the material required.

Firstly we came to the tanalising plant where material of 20% moisture was

treated with CCA salts for fencing material. The new de-barker butt reducer was the next stage which was installed for three reasons:

(1) Logs longer life.
(2) Chips salable without bark.
(3) Bark salable.

Then came the most impressive stage of the operation where the computer played its role. After leaving the de-barker each end of the log was photographed, the information was in turn fed to the computer, so that when the logs moved further down the conveyor belt all logs of equal sizes were piled together.

The mill proper consisted of one reducer band saw and three twin band saws which were capable of taking logs of up to 40cm. A stress grading machine was also on site for special orders, as was a dryer.

Afternoon

In the afternoon the tour leader Mr. Stumbles took us to Tintern Forest (St. Pierre Wood) where we met three members of the Foresty Commission Mr. D. Parsons, Mr. J. Honson and Mr. Rix.

The forest itself is one of the oldest in south-east Wales and is roughly 3500ha of which roughly 30% is hardwood and 70% conifer.

St. Pierre Wood was a traditional beauty spot written about by Wordsworth. The wood was leased by the Commission from Etton Court Estate in 1935 at which time it was Oak Coppice with occasional standards, beech, birch and ash.

In the years from 1935-40 the broadleaf coppice and standards were clearfelled in trenches, and replanted with beech in one area, and beech and European larch in another area.

In the years 1965-75 the market for small broadleaf timber was poor, and with the increased emphasis on economics, managers were encouraged to continue the conversion to conifers. In the areas that were left alone the local forester feels that it is much easier managed than the mixed crop especially when it has been thinned while also availing of the good prices that exist for hardwood in the area at present. He also pointed out that in limestone areas such as these, hardwoods grow nearly as fast as the softwoods, and the apparent national decline in area of hardwoods has now encouraged a change in policy towards retention of hardwoods in the lowlands. It was also stated that broadleaf species were most beneficial to wildlife and for nature walks.

The tour leaders and speakers were all thanked on behalf of the Society by Mr. D. Gallagher, for a very educational day. The party then returned to the Kings Head Hotel, Monmouth where the Annual Dinner was held.

Pádraig O'Halloran.

Friday, 18 May

Tour Leader: Mr. A. Rix, Conservator, Forestry Commission, South Wales.

Following our overnight stay in the picturesque town of Monmouth close to the English border we set off on our final day of the tour. Brilliant sunshine made our journey through the coalmining area of South Wales a fitting climax to a very successful tour.

Following the cessation of coalmining in the Rhonda Valley the Forestry Commission started planting in 1960. No thought was given to amenity at the time. Now the object is to get rid of the harsh lines on the borders by the judicious planting of Japanese Larch. Also on the lower slopes the planting is 60/40 in favour of hardwoods. No beating up is carried out, the object being to leave the plantation at wide spacing. There are some unplanted areas left throughout, rock outcrops are

left bare, the spruce is planted in masses on the plateaus. Some of the spruce is respaced for the Christmas tree market, planting is irregular.

We boarded the bus again and carried on to the second stop Lluent-wen Reservoir. On our journey through the vast forest, the serious damage caused by fires was very much in evidence. The incidence of fires in the South Wales Coalfields is higher than in any other part of Britain. On average there are 300 fire starts a year resulting in an average annual loss of about 100ha. This year had been a catastrophic fire season with some 700 fire starts and over 1,100ha burnt in the South Conservancy of Wales. 90% of these fires are caused by arson. At Stop 2 we were welcomed by Mr John Hunt and Mr. Roger Bushly who gave us a talk and demonstration on fire prevention and control procedures. Conventional fire-fighting methods include men with belting beaters, cross country fire tenders, with 100 gallons of water and 200 gallon foam trailers towed behind Landrovers. A very impressive demonstration using a "mock fire" situation was enacted using different types of equipment.

Our next stop was at Craig y Llynn fire tower where Mr. Stan Heaven gave us a talk on the growth of conifers in the coalfields. Two thirds of the area afforested is planted with Sitka spruce, the remaining one third with pines (Corsican, Scots, lodgepole) and Japanese larch. Average YC for Sitka is 9, pines YC 7, Larch YC 10. The pines and larch are planted on the steep sided valley, while the spruce is planted on the plateaus and hill tops. Underlying rock is sandstone, free draining on slopes, impeded on the plateaus, 50 to 90 inches rainfall per annum. Climate mild, little frost. Establishing plantations is difficult due to sheep trespass and fires. When the crop is established pollution from the industrial belt stretching from Swansea to Port Talbot is a problem. The spruce receives annual attacks of the Green Spruce Aphid, it also suffers from a physical distortion known as "bent top".

We boarded the bus for our final stop of the tour which took us to Swansea City and a look at a community project known as the Lower Swansea Valley Project. This is a very heavy industrialised area with an acid rain problem which burnt off the vegetation. It was also a toxic waste dumping area Copper mining was carried out here in the 1700s and this was the location of the smelter plant. Sulphur was given off in smoke at the rate of 300 tons every day. When the copper smelting finished the area was totally ruined, an "industrial wasteland". The Forestry Commission started in 1970 to plant this area with the help of the local community. The vast hills of waste were levelled by dozers and trees were established. The main species being lodgepole pine, Corcican pine, Japanese larch, Norway spruce, birch, alder. The project was completed in 1966 with more than 100,000 trees planted covering a total of 20ha. Today the area has become an important asset to local schools for rural based education in an industrial landscape. This indeed has been a success story. The President of the Society Dr. N. O'Carroll closed the tour by thanking those responsible for making it such a success.

Michael Davoren.

Tour Participants

T. Purcell, J. E. Johnston, E. Hendrick, J. Cronin, M. Cosgrave, Mrs. M. Cosgrave, M. Davoren, Ms. M. Newman, A. Van de Wel, P. O'Halloran, D. Gallagher, E. Lynagh, J. Doyle, P. Raftery, K. McDonald, L. Moloney, P. Kelleher, T. O'Regan, C. Fahy, Ms. J. Tottenham, R. Tottenham, B. O'Neill, R. Jack, M. Fogarty, M. Donnellan, P. Doolin, A. Mannion, N. O'Carroll, Miss L. Furlong, M. O'Brien, J. Kilbride, J. Crowley, J. McHugh, T. Crehan, J. Treacy, J. Brady, J. D. Fitzpatrick, A. McGinley, D. Houlihan, M. Shannon, T. Riordan, G. Mawn, P. Kelly, G. Hipwell, P. O'Kelly, P. MacAuliffe, G. Fleming, L. Collen, Mrs. E. Collen, M. Holloy.